

5 What is claimed is:

1. An isolated polypeptide having disintegrin activity and comprising amino acids 389 through 491 of SEQ ID NO:12.

10 2. The isolated polypeptide of claim 1 wherein the polypeptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO:12, SEQ ID NO:13, and SEQ ID NO:14.

3. The isolated polypeptide of claim 1 further comprising an amino acid sequence selected from the group consisting of amino acids 1 through 15 of SEQ ID NO:12, amino acids 16 through 188 of  
15 SEQ ID NO:12, amino acids 189 through 388 of SEQ ID NO:12, amino acids 492 through 675 of SEQ ID NO:12, amino acids 676 through 698 of SEQ ID NO:12, amino acids 699 through 766 of SEQ ID NO:12, amino acids 699 through 787 of SEQ ID NO:13, and amino acids 699 through 820 of SEQ ID NO:14.

20 4. The isolated polypeptide of claim 1 further comprising the amino acid sequence of a polypeptide selected from the group consisting of a poly-His peptide, a FLAG peptide, a peptide linker, a leucine zipper domain, and an Fc polypeptide.

25 5. The isolated polypeptide of claim 1 in non-glycosylated form.

6. An isolated polypeptide having disintegrin activity encoded by a nucleic acid molecule selected from the group consisting of:

(a) an isolated nucleic acid molecule comprising a DNA sequence selected from the group consisting of SEQ ID NO:7, SEQ ID NO:8, and SEQ ID NO:9;

30 (b) an isolated nucleic acid molecule encoding an amino acid sequence comprising the sequence selected from the group consisting of amino acids 389 through 491 of SEQ ID NO:12, SEQ ID NO:12, SEQ ID NO:13, and SEQ ID NO:14;

(c) an isolated nucleic acid molecule that encodes a polypeptide having disintegrin activity and that hybridizes to either strand of a denatured, double-stranded DNA comprising a  
35 nucleic acid sequence of (a) under hybridization conditions of 50% formamide and 6XSSC, at 42°C with washing conditions of 68°C, 0.2X SSC, 0.1% SDS; and

(d) an isolated nucleic acid molecule degenerate from SEQ ID NO:7, SEQ ID NO:8, and SEQ ID NO:9 as a result of the genetic code.

40 7. The isolated polypeptide of claim 6 having a molecular weight selected from the group consisting of approximately 86,983; 89,459; and 92,781 Daltons as determined by SDS-PAGE.

- 5      8.      The isolated polypeptide of claim 6 in non-glycosylated form.
9.      The isolated polypeptide of claim 6, wherein the polypeptide comprises amino acids 389 through 491 of SEQ ID NO:12.
- 10     10.      The isolated polypeptide of claim 9 further comprising an amino acid sequence selected from the group consisting of amino acids 1 through 15 of SEQ ID NO:12, amino acids 16 through 188 of SEQ ID NO:12, amino acids 189 through 388 of SEQ ID NO:12, amino acids 492 through 675 of SEQ ID NO:12, amino acids 676 through 698 of SEQ ID NO:12, amino acids 699 through 766 of SEQ ID NO:12, amino acids 699 through 787 of SEQ ID NO:13, and amino acids 699 through 820 of SEQ ID NO:14.
- 15     11.      The isolated polypeptide of claim 6, wherein the polypeptide comprises SEQ ID NO:12.
12.      The isolated polypeptide of claim 6, wherein the polypeptide comprises SEQ ID NO:13.
- 20     13.      The isolated polypeptide of claim 6, wherein the polypeptide comprises SEQ ID NO:14.
14.      The isolated polypeptide of claim 6 further comprising the amino acid sequence of a polypeptide selected from the group consisting of a poly-His peptide, a FLAG peptide, a peptide linker, a leucine zipper domain, and an Fc polypeptide.
- 25     15.      A polypeptide having disintegrin activity and encoded by a recombinant nucleic acid, wherein the polypeptide is expressed by a method comprising culturing a host cell comprising said recombinant nucleic acid under conditions promoting expression of the polypeptide, and wherein said recombinant nucleic acid comprises a nucleotide sequence encoding the polypeptide and selected from the group consisting of:
- 30     (a)      SEQ ID NO:7, SEQ ID NO:8, and SEQ ID NO:9;
- 35     (b)      a nucleotide sequence encoding an amino acid sequence comprising a sequence selected from the group consisting of amino acids 389 through 491 of SEQ ID NO:12, SEQ ID NO:12, SEQ ID NO:13, and SEQ ID NO:14;
- (c)      a nucleotide sequence that encodes a polypeptide having disintegrin activity and that hybridizes to either strand of a denatured, double-stranded DNA comprising a nucleotide sequence of (a) under hybridization conditions of 50% formamide and 6XSSC, at 42°C with washing conditions of 68°C, 0.2X SSC, 0.1% SDS; and
- 40     (d)      a nucleotide sequence degenerate from SEQ ID NO:7, SEQ ID NO:8, and SEQ ID NO:9 as a result of the genetic code.

- 5     16.     The polypeptide of claim 15, wherein the polypeptide is expressed by a method further comprising purifying the expressed polypeptide.
- 10     17.     The polypeptide of claim 15, wherein the polypeptide is expressed by a method comprising culturing a host cell selected from the group consisting of bacterial cells, yeast cells, plant cells, and animal cells.
18.     The polypeptide of claim 15, wherein the polypeptide is expressed by a method comprising culturing a mammalian host cell.
- 15     19.     The polypeptide of claim 15 having a molecular weight selected from the group consisting of approximately 86,983; 89,459; and 92,781 Daltons as determined by SDS-PAGE.
20.     The polypeptide of claim 15 in non-glycosylated form.
- 20     21.     The polypeptide of claim 15, wherein the polypeptide comprises amino acids 389 through 491 of SEQ ID NO:12.
- 25     22.     The polypeptide of claim 21 further comprising an amino acid sequence selected from the group consisting of amino acids 1 through 15 of SEQ ID NO:12, amino acids 16 through 188 of SEQ ID NO:12, amino acids 189 through 388 of SEQ ID NO:12, amino acids 492 through 675 of SEQ ID NO:12, amino acids 676 through 698 of SEQ ID NO:12, amino acids 699 through 766 of SEQ ID NO:12, amino acids 699 through 787 of SEQ ID NO:13, and amino acids 699 through 820 of SEQ ID NO:14.
- 30     23.     The polypeptide of claim 15, wherein the polypeptide comprises SEQ ID NO:12.
24.     The polypeptide of claim 15, wherein the polypeptide comprises SEQ ID NO:13.
25.     The polypeptide of claim 15, wherein the polypeptide comprises SEQ ID NO:14.
- 35     26.     The polypeptide of claim 15 further comprising the amino acid sequence of a polypeptide selected from the group consisting of a poly-His peptide, a FLAG peptide, a peptide linker, a leucine zipper domain, and an Fc polypeptide.
- 40     27.     An isolated polypeptide having disintegrin activity and having at least 90% amino acid identity with amino acids 389 through 491 of SEQ ID NO:12.

5     28.     The isolated polypeptide of claim 27, wherein the polypeptide has at least 95% amino acid identity with amino acids 389 through 491 of SEQ ID NO:12.

29.     The isolated polypeptide of claim 27, wherein the polypeptide has at least 98% amino acid identity with amino acids 389 through 491 of SEQ ID NO:12.

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30.     The isolated polypeptide of claim 27, wherein the polypeptide further comprises an amino acid sequence selected from the group consisting of amino acids 1 through 15 of SEQ ID NO:12, amino acids 16 through 188 of SEQ ID NO:12, amino acids 189 through 388 of SEQ ID NO:12, amino acids 492 through 675 of SEQ ID NO:12, amino acids 676 through 698 of SEQ ID NO:12, amino acids 699 through 766 of SEQ ID NO:12, amino acids 699 through 787 of SEQ ID NO:13, and amino acids 699 through 820 of SEQ ID NO:14.

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31.     The isolated polypeptide of claim 27, wherein the polypeptide further comprises the amino acid sequence of a polypeptide selected from the group consisting of a poly-His peptide, a FLAG peptide, a peptide linker, a leucine zipper domain, and an Fc polypeptide.

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